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TA-53 Procedure

ES&H Review of Experimental Activities and Development Tests

53FMP-114-01.01

Effective date: 10/1/94

APPROVALS

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1.0 Introduction

DOE 5480.25, "Safety of Accelerator Facilities," defines "accelerator" as "a device employing electrostatic or electromagnetic fields to impart kinetic energy to molecular, atomic, or sub-atomic particles and, for purposes of this Order, capable of creating a radiological area." The Order requires that DOE contractors establish an internal safety review system for accelerator facilities to ensure safe, healthful, and environmentally sound operations. Though not all TA-53 activities fall within the scope of DOE 5480.25, it is appropriate that any experiment or test which could pose hazards to workers, the public, or environment, be independently reviewed to ensure that hazards are sufficiently mitigated.

The TA-53 Landlord has delegated the responsibility for facility safety to the TA-53 Facility Manager (FM), therefore the FM must be an integral part of the review process. Reviews may be conducted under the auspices of the TA-53 Landlord and FM, or by an independent Laboratory accelerator review body.

2.0 Purpose

The purpose of this procedure is to establish requirements for independent review of new and modified experimental activities, new experimental facilities, and accelerator development tests at TA-53.

This procedure is intended to fulfill, in part, the requirements of Paragraph 13 of DOE 5480.25; the establishment of a chartered accelerator review committee will fulfill the requirements of Paragraph 13 concerning review of safety assessment documents, periodic audits, and performance reviews. This procedure also provides a process for the independent review of potentially hazardous nonnuclear activities not covered by DOE 5480.25.

3.0 Scope

This procedure applies to the following activities:

- experiments involving accelerators, high-power microwave devices, rf cavities, and rf devices capable of creating a radiological area;
- accelerator development tests (e.g., beam spill tests);
- experiments or tests posing unusual or significant first-time risks to workers, facilities, the public or the environment;
- new facilities supporting any of the above activities; and
- modifications to experiments or experiment facilities which have ES&H implications beyond existing safety envelopes.

This procedure does not apply to:

- user experiments reviewed under existing procedures;
- maintenance, servicing, or routine testing covered by SWPs, RWPs, or operating procedures;
- construction safety.

4.0 Definitions

Accelerator Readiness Review/Operational Readiness Review (ARR/ORR). A structured method for verifying that hardware, personnel, and procedures associated with commissioning or operation of a facility or experiment are ready to permit the activity to be undertaken safely.

TA-53 FACILITY MANAGEMENT PROCEDURE	<i>ES&H REVIEW OF EXPERIMENTAL ACTIVITIES AND DEVELOPMENT TESTS</i>	53 FMP 114-01.01 Effective 10/1/94 Page 4 of 9
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Development test. A test conducted to determine performance, capability, or effects of operation (e.g., a beam spill test)

Independent review. A review that provides the objectivity necessary to ensure that ES&H issues are not overlooked or given inappropriate priority. An independent review is normally conducted by persons not directly involved with the activity under consideration.

Safety envelope. The set of physical and administrative conditions that define the bounding conditions for safe operations at a facility.

5.0 Responsibilities

Who?	Responsibility
Group or project leader	<ul style="list-style-type: none"> ¥Notifies TA-53 ES&H Team Leader (ES&HTL) of upcoming experiment or test ¥Provides input to review scoping and review plan ¥Provides information, tours, or interviews requested by review team ¥Coordinates corrective actions resulting from review and reports corrective actions on Category A findings to review team leader
Division Director/ Program Manager	¥Approves start of activity after recommendation resulting from TA-53 Internal Review
TA-53 ES&H Team Leader	<ul style="list-style-type: none"> ¥Determine scope and content of review in coordination with TA-53 Facility Manager and group or project leader ¥Coordinates preparation for review until review team leader is selected
TA-53 Facility Manager	<ul style="list-style-type: none"> ¥Appoints review team leader for TA-53 Internal Reviews ¥Informs DOE Facility Representative (FR) of reviews ¥Submits recommended facility hazard classification to ESH-3 for concurrence ¥Submits recommended hazard classification, review plan, and review milestones to DOE FR ¥Forwards start authorization or concurrence with review report, as applicable, to DOE FR
TA-53 Landlord	¥Appoints review team leader for ARR/ORR, or requests review from an independent Laboratory accelerator review body
ESH-3	¥Provides advice and expertise regarding content and conduct of reviews and hazard classification submittals
Review Team Leader	<ul style="list-style-type: none"> ¥Selects review team members ¥Acts as liaison between review team members, ESH-3, facility personnel, and TA-53 FM ¥Prepares review plan and schedule if required ¥Coordinates conduct of review ¥Prepares review report ¥Submits report to FM and group/project leader ¥Verifies closeout of Category A findings
Review Team Members	<ul style="list-style-type: none"> ¥Conduct appropriate inspections, interviews, and document reviews ¥Submit findings to Review Team Leader

6.0 Precautions and Limitations

For activities requiring DOE approval, sufficient time must be allowed for preparation of documentation, conduct of reviews, and approval.

Walk-through of certain areas may require dosimetry and/or special training or escort of untrained persons.

7.0 Procedural Steps

7.1. General.

7.1.1. Reviews should employ a graded approach commensurate with the hazards, complexity, and safety impacts of the activity being considered.

7.1.2. A review should objectively cover:

- ES&H aspects of the design of the accelerator and accelerator facility (prior to construction, if applicable);
- pertinent safety documentation, including SOPs, procedures, and safety assessment documents;
- training; and
- formality and conduct of operations.

7.1.3. Reviews should include interaction with personnel from the project under consideration, but must provide the objectivity necessary to ensure that ES&H issues are not overlooked or given inappropriate priority. Review team members should be selected so as to provide independent technical competence in all areas required for the review.

7.1.4. The results of review should be considered as advisory to project management, and the manager should be free to act on the advice as s/he deems appropriate. The disposition of all advice shall be documented.

7.1.5. Consideration shall be given to conducting reviews at appropriate points in the development of an experiment or construction of a facility. Review at the earliest practical time is strongly advised in order to identify applicable ES&H concerns and avoid delays. In cases where the commissioning or development of an experiment proceeds incrementally, the review process may be phased to sequentially address discrete portions of the activity.

7.2. Notification and Scoping. Prior to the start of an experimental or test activity, the group or project leader responsible for the activity shall contact the TA-53 ES&H Team Leader (60-90 days notification is recommended for reviews conducted under 7.2.1; 6-12 months for reviews conducted under 7.2.2). The TA-53 ES&H Team Leader, in coordination with the responsible group/project, the TA-53 Facility Manager, and if appropriate, ESH-3, will determine the scope and content of the review based on a graded approach that considers facility hazard classification (if assigned), risk to personnel, facilities, and the environment, and DOE orders. The scope of the review will fall into one of the following two categories:

7.2.1. TA-53 Internal Review. This type of review is conducted when the requirements of DOE 5480.25 or DOE/AL 5481.1B for DOE approval do not apply. Depending on the complexity and hazards of the activity, the scope of an internal review may range from a simple walkdown of the area and a review of procedures to a formal review involving several ES&H disciplines.

7.2.2. Accelerator Readiness Review or Operational Readiness Review. A formal internal review conducted under the requirements of DOE 5480.25 or DOE/AL 5481.1B. This review serves as a basis for DOE approval of the activity, and may be conducted by an independent Laboratory accelerator review body.

TA-53 FACILITY MANAGEMENT PROCEDURE	ES&H REVIEW OF EXPERIMENTAL ACTIVITIES AND DEVELOPMENT TESTS	53 FMP 114-01.01 Effective 10/1/94 Page 6 of 9
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7.3. Review Preparation. Preparation for a review should be conducted using the following steps:

TA-53 internal review	<ul style="list-style-type: none"> •Group/project notifies TA-53 ES&HTL •ES&HTL determines scope and content of review •FM appoints review team leader •FM notifies DOE Facility Representative (FR) of review •Review team leader contacts ESH-3 for assistance, if required •Review team leader selects review team members •Review team leader prepares review plan and schedule, if required, in coordination with group/project leader •Group/project leader makes appropriate documentation available to reviewers
ARR/ORR	<ul style="list-style-type: none"> ✖Group/project notifies TA-53 ES&HTL ✖ES&HTL determines scope and content of review ✖TA-53 Landlord appoints review team leader or requests review from an independent Laboratory accelerator review body ✖FM notifies DOE FR of review ✖Review team leader contacts ESH-3 for assistance ✖Review team leader selects review team members ✖Review team leader prepares review plan and schedule in coordination with group/project leader ✖Review team, in coordination with ESH-3, reviews documentation to determine hazard classification recommendation and submits recommendation to FM ✖FM submits recommended hazard classification, review plan, and review milestones to DOE FR ✖Group/project leader makes appropriate documentation and a pre-review tour of the facility available to reviewers

TA-53 FACILITY MANAGEMENT PROCEDURE	<i>ES&H REVIEW OF EXPERIMENTAL ACTIVITIES AND DEVELOPMENT TESTS</i>	53 FMP 114-01.01 Effective 10/1/94 Page 7 of 9
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7.4. Review. The review process should be conducted using the following steps:

TA-53 internal review	<p>¥Review team members conduct document reviews, interviews, and facility walkdowns as necessary</p> <p>¥Review team members submit findings to review team leader</p> <p>¥Review team leader prepares report and submits it to the FM and group/project leader. The report will include a recommendation for activity start or will specify findings (Category A) which require resolution prior to start of the activity. Other findings (Category B) will be listed as requiring action plans or correction within a specified time frame.</p> <p>¥Review team leader verifies the closeout of Category A findings, provides verification to FM.</p> <p>¥FM forwards concurrence with recommendation to the cognizant division director or program manager, the TA-53 Landlord, and the DOE FR.</p> <p>¥The cognizant division director or program manager authorizes start of the activity.</p> <p>¥FM forwards copy of review report and start authorization to DOE FR</p>
ARR/ORR	<p>¥Review team members conduct document reviews, interviews, and facility walkdowns as necessary</p> <p>¥Review team members submit findings to review team leader</p> <p>¥Review team leader prepares report and submits it to the FM and group/project leader. The report will include a recommendation for activity start or will specify findings (Category A) which require resolution prior to start of the activity. Other findings (Category B) will be listed as requiring action plans or correction within a specified time frame.</p> <p>¥Review team leader verifies the closeout of Category A findings, provides verification to FM.</p> <p>¥FM forwards review report and concurrence with review team recommendation to the cognizant division director or program manager, the TA-53 Landlord, and the DOE FR.</p> <p>¥DOE FR acts as liaison for DOE approval of activity.</p>

8.0 Required Records

8.1. The Facility Manager shall maintain records of hazard classification recommendations and determinations. Hazard classification recommendations shall be prepared in accordance with DOE 5480.25 Guidance, Part 1B or DOE 5481.1B, as appropriate.

8.2. The Facility Manager and responsible group/project leaders shall keep a record of reviews and approvals covered by this procedure, as well as the disposition of advice from review teams. Review reports may be in memo form or a formal report format, depending on the scope of the review.

9.0 References

- 9.1. DOE 5480.25, "Safety of Accelerator Facilities"
- 9.2. DOE 5480.25 Guidance
- 9.3. DOE 5481.1B, "Safety Analysis and Review System"
- 9.4. DOE/AL 5481.1B, "Safety Analysis and Review System"

TA-53 FACILITY MANAGEMENT PROCEDURE	<i>ES&H REVIEW OF EXPERIMENTAL ACTIVITIES AND DEVELOPMENT TESTS</i>	53 FMP 114-01.01 Effective 10/1/94 Page 8 of 9
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10.0 IMPLEMENTATION SCHEDULE

The requirements of this procedure take effect as of the date shown on this document. Statements relating to an independent Laboratory accelerator review body will take effect when such a body is chartered and approved.